REMARKS

Claims 1 and 2 are pending in this application. Claims 1 and 2 have been rejected. Claim 1 has been amended as supported on page 6, lines 30-32. Claim 2 has been amended as supported on page 8, lines 3-6, and as supported throughout the specification. No new matter has been added by this amendment. Applicants respectfully request reconsideration in view of the following remarks.

I. Specification

The disclosure is objected to because of informalities. The Examiner suggests that both element numbers 10 and 42 are used to describe the upper pressure chamber in the specification. In accordance with the Examiner's suggestion, the specification has been amended to recite a bottom side 42 to the upper pressure chamber 10. Support for this amendment is found throughout the specification and at Figure 1. Further, the lower pressure chamber is suggested to be represented by both elements 12 and 52. In accordance with the Examiner's suggestion the specification has been amended at page 4 beginning at line 29, to recite a bottom 52 to the lower pressure chamber 12. Support for

this amendment is found throughout the specification and at Figure 1.

Applicants believe that this amendment overcomes the Examiner's objections. Reconsideration and withdrawal of this objection is respectfully requested.

II. Claim Objections

Claim 2 is objected to for informalities, namely the Examiner has objected to the phrase "the operation point" in line 4 and requested the phrase be changed to -- an operation point--.

In accordance with the Examiner's suggestion, claim 2 has been amended to recite "an operation point".

Reconsideration and withdrawal of this objection is respectfully requested.

III. Rejection of claims under 35 U.S.C. §102(a)

The Examiner has rejected claim 2 under 35 U.S.C. §102(a)as being anticipated by JP2000-291725 (JP'725). The Examiner suggests that JP'725 shows in Figure 1 a device for adaptive vibration attenuation comprising a passive isolator 14a, 14b with a nonlinear force-deflection characteristic as disclosed in line

3 of the novelty section of the English abstract and a mechanical actuator 22, 28 which varies the operating point of the passive isolator along the force-deflection characteristic wherein the mechanical actuator is comprised of a spring 28, and a means 22 for externally controlling a preload to the spring.

Applicants respectfully disagree.

MPEP 2131 states that "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".

Claim 2 of the present invention has been amended to clarify that the mechanical actuator is comprised of a coiled spring, a non-linear spring and a means for externally controlling a preload to said coiled spring whereby as force on the coiled spring is varied, pressure is transferred to the non-linear spring, as supported throughout the specification and at page 8, lines 3-6. The externally adjustable means (mechanical or pneumatic) is shown for example at element 22 on Figure 2. In the present invention, no explicit damping element (i.e., Coulomb or otherwise) is necessary.

JP'725 teaches various passive shock and vibration attenuation devices. In contrast to the Examiner's statement, there is no mechanical actuator. Thus, there is not an element that is externally controllable, in Figure 1 of JP'725. JP'725 teaches a means for adjusting the friction forces, which are used as the main principle to dampen vibrations and hence suppress sounds. Further, JP'725 requires that a damping mass is supported from both sides by springs of non-linear characteristics. In JP'725 the vibration rate and oscillation frequency of a damping mass body against the quantitative displacement of coiled spring is inapposite to the present invention as when the coiled spring is displaced greatly by the adjustment mechanism the non-linear springs are only slightly displaced. In the present invention, an increase of pressure on the coiled spring increases the quantitative displacement or pressure on the non-linear springs. Thus, JP'725 cannot anticipate claim 2 as amended.

Reconsideration and withdrawal of this rejection is respectfully requested.

IV. Rejection of claims under 35 U.S.C. §103(a)

The Examiner has rejected claim 1, under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,371,462 to Gennesseaux in view of U.S. Patent 5,700,000 to Wolf et al. The Examiner suggests that Gennesseaux shows in Figure 1, a device for adaptive vibration attenuation comprising a passive isolator 5 with a force-deflection characteristic and a pneumatic actuator P, 17, 49 which varies the operating point of the isolator along the force deflection characteristic wherein the pneumatic actuator comprises at least one pressure chamber P wherein air pressure in the pressure chamber can be externally controlled via elements 50, 51, 52, and 55.

Gennesseaux is acknowledged to fail to disclose that the force-deflection characteristic of the passive isolator 5 is non-linear.

Wolf et al. is suggested to teach in Figure 6 and in column 4 at lines 30-47 that the use of a vibration attenuation device comprising a passive isolator with a non-linear force deflection characteristic.

It is suggested by the Examiner that it would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified the passive isolator of Gennesseaux to have been constructed such that it had a non-linear force-deflection characteristic as taught by Wolf et al. in order to provide a means of allowing good damping and preventing shaking even at large amplitudes of perturbation as taught by Wolf et al. in col. 4, lines 43-45.

Applicants respectfully disagree.

At the onset it is respectfully pointed out that claim 1 has been amended to clarify that the pneumatic actuator of the present invention comprises at least one upper pressure chamber and one lower pressure chamber wherein air pressure in at least one upper pressure chamber can be externally controlled and wherein the natural frequency of the system is regulated by applying pressure to the upper pressure chamber or the lower pressure chamber. Support for this amendment is found throughout the specification and especially at page 6, beginning at line 30.

To establish a *prima facie* case of obviousness under 35 U.S.C. 103(a) three basic criteria must be met. MPEP § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art must teach or suggest all of the claim limitations.

First, Gennesseaux fails to teach a pneumatic actuator comprising at least one upper pressure chamber and one lower pressure chamber wherein air pressure in said at least one upper pressure chamber can be externally controlled and wherein the natural frequency of the system may be regulated by applying pressure to the upper pressure chamber or the lower pressure chamber.

In contrast, Gennesseaux teaches a flexible elastomer membrane 17 which constitutes an exciter member designed to generate counter vibrations in a chamber, see columns 3-4. The solenoid is taught to be actuated in order to place the pneumatic chamber under vacuum, column 6, lines 35-37.

One of skill in the art would not look to Wolf to provide any relevant teachings to the Gennesseaux reference, as Wolf et al. teach a bearing that is unrelated to the present invention, namely a bearing with a rubber elastic support body. Wolf et al. do not teach any active control, nor the presence of at least one upper pressure chamber and at least one lower pressure chamber.

Thus, the recited art fails to teach or suggest all of the limitations of claim 1. Neither Gennesseaux nor Wolf teach a pneumatic actuator comprising at least one upper pressure chamber and one lower pressure chamber, nor do they teach that the air pressure is externally controlled.

Accordingly, the references fail to establish a *prima facie* case of obviousness against the pending claims.

Reconsideration and withdrawal of this rejection is respectfully requested.

Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,

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